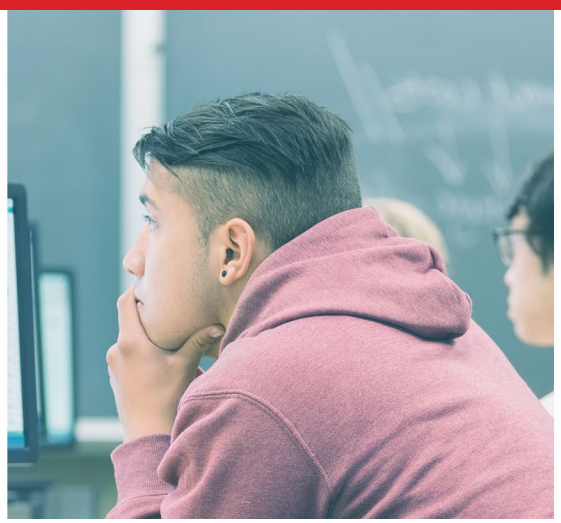
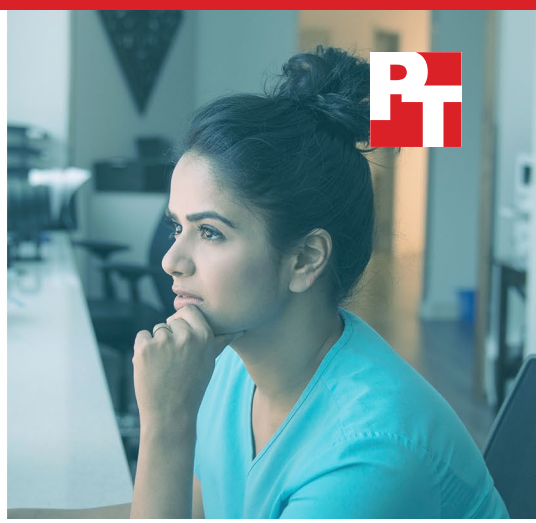




Executive summary

Give your VDI users the memory they need with server technology from Dell EMC and Intel

Intel Optane DC persistent memory in a Dell EMC PowerEdge R740xd server with 2nd Generation Intel Xeon Scalable processors

Vital to industries like healthcare, education, finance, and more, virtual desktop infrastructure (VDI) enables users to access their company desktop regardless of where they happen to be sitting. Traditionally, individual VDI users have just a few gigabytes of RAM to work with. As a VDI user approaches their memory limit, they may experience frustrating slowdowns that impact their work and any customers they serve. Banking customers may grow impatient with slow service. Students may accomplish less during in-class assignments. A healthcare patient could be left waiting as a nurse tries to access their chart, causing compounding schedule delays in the clinic.

A VDI solution that provides more memory to each user could result in improved user experience, greater customer satisfaction, and more productivity. Supporting more users per server could also enable you to cut down on the number of servers in your data center.

At Principled Technologies, we compared VDI performance between a Dell EMC™ PowerEdge™ R730xd , a newer PowerEdge R740xd, and a PowerEdge R740xd with Intel® Optane™ persistent memory and powered by 2nd Generation Intel Xeon® Scalable Processors. The new solution with Intel Optane technology enabled us to support 75 VDI users—3.75 times as many users as a legacy solution and 2.5 times as many as the same server without Intel Optane memory.

What is Intel Optane persistent memory?

According to Intel, the act of data passing back and forth between storage and RAM incurs a considerable penalty to latency and bandwidth—consequences that can carry over to your customers and end users. Intel Optane DC persistent memory acts as a hybrid of storage and RAM, potentially reducing the latency and bandwidth penalties of moving data around separate server components.[1]

Why does Intel Optane technology matter?

Today's VDI users perform more memory-intensive tasks than in the past, such as opening multiple internet browser tabs and windows. This common habit eats up memory quickly.

Intel Optane DC persistent memory allows a system to reach memory capacities well beyond what is possible with traditional RAM. This relieves stress on the system, enabling more efficient use of server resources.

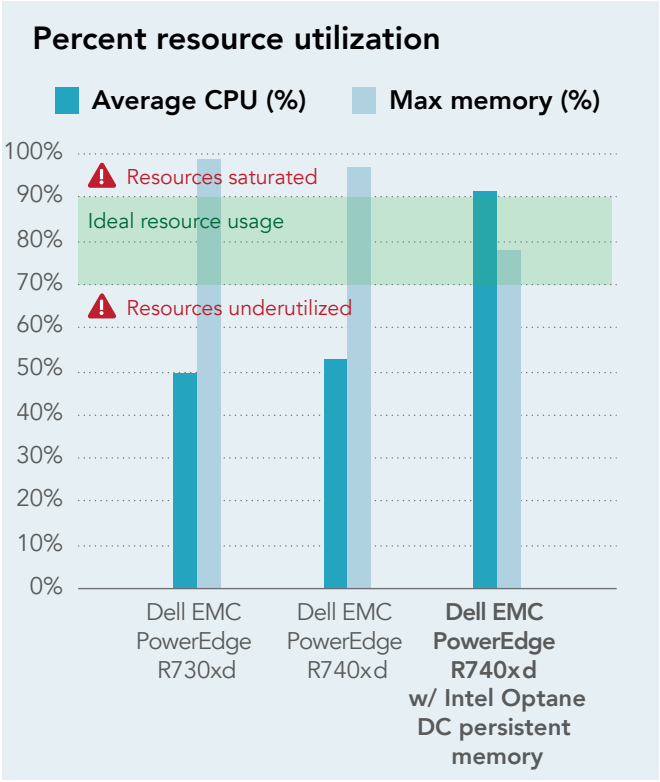
What we found

We assessed each server solution by using load-testing software from VMware View Planner to create a large number of synthetic VDI users. The Dell EMC PowerEge R740xd server with Intel Optane DC persistent memory achieved 3.75 times as many users as the legacy server and 2.5 times as many as the PowerEdge R740xd without Intel Optane technology. A difference this large could enable you to cut down on the physical infrastructure in your data center as your virtual infrastructure paves the way for more happy users. Or, it could allow your business to grow without physically expanding its data center or threatening the customer satisfaction you've worked hard to achieve.

Making better use of resources

Managing server resources well demands a delicate balance. Underutilizing resources means you aren't getting the performance you've paid for, while using resources to the point of saturation can lead to increased downtime or slow user experiences. Using 70 to 90 percent of critical resources, notably CPU and RAM, is generally a good range to target.

In our tests, the two server configurations that lacked Intel Optane DC persistent memory used just 50 percent of their CPU capacity, yet nearly 100 percent of their memory. In the real world, this memory saturation would cause VDI user sessions to slow, freeze, and stop working. Intel Optane DC persistent memory delivered a much better balance that enabled the server to take full advantage of its resources.



The result in our tests was an increase of up to 3.75 times the number of VDI users, a figure that could help you get more from your data center investment.

Conclusion

In our tests, a Dell EMC PowerEdge R740xd server with Intel Optane DC persistent memory supported 3.75 times as many users as a legacy PowerEdge R730xd solution, and 1.5 times more than the PowerEdge R740xd without Intel Optane DC persistent memory. With the ability to support more VDI users—and especially high-memory VDI users—your business could improve its services and even cut down on the number of servers taking up space in your data center.

1 "Second Generation Intel Xeon Scalable Processors," accessed October 16, 2019, https://www.intel.com/content/www/us/en/products/docs/processors/xeon/2nd-gen-xeon-scalable-processors-brief.html.

Read the report at http://facts.pt/3iqjmxu ▶

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